

Application No.: 10/625,586
Docket No.: KB4615 US NA

Remarks

Claim 1 has been amended above. In view of this amendment and the remarks provided below, reconsideration and allowance of the Claims of the present invention is respectfully requested.

Rejection Under 35 U.S.C. 103(a)

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiou et al (U.S. Patent 5,622,771) [R1] in view of Li et al (U.S. Patent 4,916,000) [R2] and Prickett (U.S. Patent 5,853,885) [R3].

Applicants respectfully traverse the Examiner's obviousness rejection. The cited references do not teach or suggest the claimed improvement. No suggestion can be found in any of the references for making the combination suggested by the Examiner. Even if the references were considered in combination by one of ordinary skill in the art, the claimed invention would not have been and is not obvious therefrom. In view of these facts, the Examiner has not established a prima facie case of obviousness.

R1 discloses a substantially different article than that recited in the present invention. R1 discloses a spike resistant article consisting essentially of woven fabric made of continuous multifilament aramid yarn having an energy to break (or toughness) of at least 30 Joules/gram (column 1, lines 34-35; column 4, lines 34-35; column 4, lines 26-29). The yarn has a tenacity of at least 19 grams per dtex (column 4, lines 16-17). The filaments in the yarn have a linear density of less than 1.67 dtex (column 1, lines 35-36; column 2, line 1; column 4, line 10).

R1 fails to disclose the present invention in no less than 4 ways. **First**, sole independent Claim 1 of the present invention has been amended to recite an article made of woven fabric made of **yarns having a tenacity of 3 to 16 grams per dtex** which is outside the suitable range described in R1 in column 4, lines 16-17. In this respect, R1 now teaches away from what is recited in the present invention. **Second**, sole independent Claim 1 of the present invention recites a penetration resistant article comprising a plurality of flexible layers having an **areal density of 0.5 to 6.0 kilograms per square meter**. R1 does not mention the areal density of articles. As such, R1 does

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not teach the desirability of, or how to make, an article having the areal density of the present invention. **Third**, sole independent Claim 1 of the present invention recites an article made of woven fabric made of **yarns having an energy to break (or toughness) of 8 to less than 30 Joules per gram** which is outside of the range disclosed in R1. In this respect, the present invention, in fact contradicts the teaching of R1. **Fourth**, sole independent Claim 1 of the present invention recites an article made of woven fabric made of **yarns comprising staple fiber**; whereas, only continuous fiber is contemplated by R1 since only continuous multilament aramid yarn can have an energy to break of at least 30 Joules per gram having the other properties required therein. Notice R1 never references staple yarn and all examples in R1 utilize continuous yarn.

R2 does not cure the deficiencies of the primary reference. R2 discloses a **ballistic resistant composite article** comprised of one or more layer where each layer comprises a network of filaments (that can be a woven fabric) in a resin matrix where the ratio of the thickness of the layer to the equivalent diameter of the filaments is equal to or less than 12.8.

In contrast, sole independent Claim 1 of the present invention has been amended to state that the woven fabric of each layer is "without matrix resin impregnating the fabric". Support for this amendment is found on page 17, lines 11-12. This feature alone is enough to distinguish the present claims over R2. The use of the matrix resin in R2 strengthens the ultimate article allowing its component parts to have different properties than parts in an article without resin matrix. So it is now faulty reasoning to argue that R2 would suggest to one skilled in the art to modify the properties of parts (fabrics, fibers, etc) in R1 to conform to properties of parts encased in matrix resin as taught by R2.

In addition, sole independent Claim 1 of the present invention additionally recites (1) the article having an areal density of 0.5 to 6.0 kilograms per square meter, (2) the fabric having a fabric tightness factor of 0.75 to 1.15, (3) the yarn having a linear density of 500 dtex or less, (4) the yarn made of staple fiber, and (5) the staple fibers having a linear density of 0.2 to 7.0 dtex per fiber. None of these 5 features are disclosed in R2.

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R3 does not cure the deficiencies of R1 and R2. R3 discloses a yarn that can be woven into a cut resistant fabric to resist against knife cuts in certain apparel such as gloves, aprons, sleeves. Specifically, R3 discloses a staple yarn that can be given a low twist and then woven into fabric that results in a soft feel or finer hand than fabrics made using highly twisted staple yarns. A single layer of the fabric is used to make apparel that protects body parts against cuts, but not against lethal forces from bullets or spikes.

Though recited in sole Claim 1 of the present invention, R3 does not disclose (1) an article comprising plurality of layers, (2) the fabric tightness factor of its fabric, much less a fabric tightness factor of 0.75 to 1.15, (3) the tenacity of its yarn, much less a yarn tenacity of 3 to 16 grams per dtex, or (4) the energy to break of its yarn, much less a yarn energy to break of 8 to less than 30 Joules per gram.

No reason has been provided why R2 and R3 would have been combined with R1 by one skilled in the art, particularly in the fashion proposed by the Examiner to support this rejection. In addition, contrary to an express teaching away in R1, the Examiner combines R1 with R2. More specifically, R1, which is related to producing spike protective articles teaches in column 1, lines 57-64, "[T]here has been considerable effort expended in the past on improvement of ballistic garments; and many times the assumption has been that improved ballistic garments will also exhibit improved stab resistance or penetration resistance. The inventors herein have found that assumption to be incorrect ...". Despite this express teaching away from combining R1 with teaching directed to ballistic articles, the Examiner relies on R2 which discloses a composite article for protection against ballistic threats (column 1, lines 6-7; column 1, lines 55-56; column 2, lines 20-28; column 3, lines 34-40; etc.). R2 is entirely silent on whether any of its teaching can be used to improve resistance to stabs such as by sharp objects including spikes as is the object of the present invention. Similarly, R3 is also used in the rejection, but R3 is directed to yet a third problem - to produce a cut resistant fabric. No argument has been presented by the Examiner as to what would motivate one skilled in the art to combine the art as proposed by the Examiner.

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In this regard, merely relying on the fact that a limitation recited in a Claim is disclosed in one or even only two of the three applied references does not alone support a conclusion that it would have been obvious to pick that limitation out of the reference and combine it with teachings chosen from the other two references. To support combining references to reject claims under 35 U.S.C. 103, it is not realistic to pick and choose from any one reference, to the exclusion of other parts necessary to full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The mere existence in the prior art of individual features of the invention does not without more, make the invention obvious under 35 U.S.C. 103. See Racal-Vadic, Inc. v Universal Data Systems, supra.

Although no case of prima facie obviousness has been made, even if it were, the present application provides concrete evidence of unexpected advantageous results that would overcome such a postulated prima facie obviousness rejection and therefore further supports the patentability of the present claims. The data given in the Examples of the present application provide concrete data which demonstrate that the article of the present invention leads to unexpectedly superior articles as compared to the articles formed in accordance with the teachings of the prior art.

It should also be noted that many of the limitations recited in the dependent Claims are not disclosed in or suggested by any of the cited references, such as the limitations recited in Claims 5, 8, 14, 15, 16, 18, and 19. As such, these Claims should be allowed.

As such, it is respectfully submitted that this rejection is overcome and should be withdrawn.

Conclusion

The foregoing reasons are believed to comprise a full and complete response to the outstanding non-final Examiner's Office Action. Further, it is submitted that any basis for the rejections of the Claims has been obviated. Thus, Claims 1-19 are respectfully submitted to be in condition for allowance. Favorable reconsideration with subsequent allowance of Claims 1-19 is respectfully requested. If any matter remains to be resolved before

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allowance, the Examiner is encouraged to call Applicants' attorney at the number provided below.

Respectfully submitted,



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